

Diagnosis of Trombiculosis by Videodermoscopy

To the Editor: Dermoscopy (also known as dermatoscopy, epiluminescence microscopy, and surface microscopy) is a noninvasive technique that enables rapid and magnified ($\times 10$) in vivo observation of the skin and detection of morphologic details often not visible to the naked eye. Videodermoscopy, which is performed with a probe equipped with lenses providing higher magnification (up to $\times 1,000$) and connected to a personal computer, enables more detailed inspection of the skin than does manual dermoscopy and enables storage of digital images. Both techniques have been widely used for the differential diagnosis and monitoring of pigmented lesions; however, a role for these techniques in the diagnosis and follow-up of other skin disorders has recently emerged (1,2). Their usefulness for diagnosing several parasitic disorders of the skin (e.g., scabies, pediculosis, phthiriasis, larva migrans, tungiasis, myiasis, and tick infestations) has led to introduction of the term entodermoscopy. In the hands of trained physicians, these techniques are more effective than traditional methods (e.g., parasite identification by microscopic examination of samples obtained by skin scraping); they are well accepted by patients and particularly suitable for mass screening and posttreatment follow-up examinations (1–8).

We describe a puzzling case in which videodermoscopy enabled a definitive diagnosis of trombiculosis. Trombiculosis is a common but underreported ectoparasitosis that is probably often misdiagnosed.

In January 2013, a 66-year-old man from eastern Sicily, Italy, reported diffuse intense pruritus that persisted despite various treatments administered in the previous months for a well-documented diagnosis of

scabies. The condition had considerably impaired his quality of life, causing family concerns and missed workdays. Physical examination revealed multiple excoriations and pinpoint erythematous macules scattered throughout the trunk and lower legs (Figure, panel A), but no burrows or other findings suggestive of scabies were detectable with use of a common magnification lens. An accurate and thorough examination by videodermoscopy (at $\times 150$ magnification) revealed a reddish mite strongly attached to the skin on the patient's right shin. In the stored images, a larval *Neotrombicula autumnalis* mite was subsequently identified (Figure, panel B). A diagnosis of cutaneous trombiculosis was made, and the patient was instructed to avoid further environmental exposure; his symptoms were consequently relieved.

Trombiculosis is an infestation of the skin by the larval stage of various species of mites belonging to the phylum Arthropoda, class Arachnida, subclass Acarina. *N. autumnalis* mites are more diffuse in the temperate and humid European environment, where adult individuals live and reproduce on the soil, especially during warmer and wet late summer months. Eggs usually hatch at the end of autumn, and new mites, which at their larval stage are obligate parasites of warm-blooded hosts, usually feed and grow on the skin of small rodents and dogs, injecting lytic enzymes to digest cutaneous cells. Humans engaged in

outdoor activities or staying in the countryside for professional or recreational purposes can become occasional hosts of this ectoparasite. Infection is more common in autumn and should be suspected for persons at risk (e.g., farmers, hunters, children) who have an itchy eruption with a likely environmental cause (9).

No specific medications are required to treat trombiculosis in humans. Usually effective measures are use of repellents, avoidance of exposure by wearing adequate clothing when in mite-infested areas, and washing of body and clothes with soap and hot water immediately after exposure. Itch can sometimes be relieved by supportive care with oral antihistamines or topical corticosteroids (9). Antimicrobial drugs might be needed to cure bacterial superinfection resulting from repeated scratching.

Trombiculosis is not considered rare, but it is underreported and, probably, often misdiagnosed. Cutaneous findings are nonspecific, and an accurate anamnesis is essential for making this challenging diagnosis. Because the patient reported here denied any professional or recreational outdoor activities, a single clinical examination would probably have led to a wrong diagnosis of a nonspecific itchy dermatitis, leading to use of inadequate or needless medications. Also, our experience confirms that common magnification lenses and even dermoscopy at $\times 10$ magnification have some limitations;

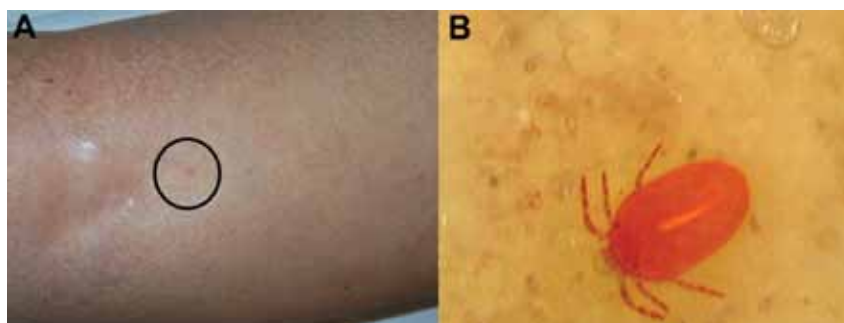


Figure. Clinical features of a nonspecific lesion (circle) (A) and its corresponding, unequivocal dermoscopy findings (B), showing a *Neotrombicula autumnalis* mite attached to the skin (original magnification $\times 150$).

parasites can easily be missed or barely noticeable so that their identification can be quite difficult. In such instances, videodermoscopy might lead to the diagnosis and should be considered as a useful diagnostic aid. Image storage and sharing can also facilitate collaboration with experts and can enable timely recognition of unusual parasitic disorders imported from different geographic areas or tropical countries.

The cost of the equipment varies according to resolution quality, magnification capability, and image storage facility; costs range from 500 (for simple systems) to 10,000 (for sophisticated systems) euros. The expense is greatly outweighed by the advantages of avoiding the high cost of managing outbreaks of epidemic parasitoses resulting from misdiagnosis, treatment failures, and incomplete posttreatment monitoring (10).

Videodermoscopy is a noninvasive way to diagnose some pruritic disorders while avoiding unnecessary, uncomfortable, and sometimes expensive investigations and treatments. Physicians without access to such equipment should consider promptly referring patients to the nearest available videodermoscopy service for effective management.

**Maria R. Nasca,
Francesco Lacarrubba,
and Giuseppe Micali**

Author affiliation: University of Catania, Catania, Italy

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References

1. Micali G, Lacarrubba F, Massimino D, Schwartz RA. Dermatoscopy: alternative uses in daily clinical practice. *J Am Acad Dermatol*. 2011;64:1135–46. <http://dx.doi.org/10.1016/j.jaad.2010.03.010>
2. Lacarrubba F, D'Amico V, Nasca MR, Dinotta F, Micali G. Use of dermatoscopy and videodermoscopy in therapeutic follow-up: a review. *Int J Dermatol*. 2010;49:866–73. <http://dx.doi.org/10.1111/j.1365-4632.2010.04581.x>
3. Micali G, Tedeschi A, West DP, Dinotta F, Lacarrubba F. The use of videodermoscopy to monitor treatment of scabies and pediculosis. *J Dermatolog Treat*. 2011;22:133–7. <http://dx.doi.org/10.3109/09546631003649687>
4. Lacarrubba F, Micali G. Videodermoscopy enhances the diagnostic capability in a case of scabies of the scalp. *G Ital Dermatol Venereol*. 2008;143:351–2.
5. Micali G, Lacarrubba F, Tedeschi A. Videodermoscopy enhances the ability to monitor efficacy of scabies treatment and allows optimal timing of drug application. *J Eur Acad Dermatol Venereol*. 2004;18:153–4. <http://dx.doi.org/10.1111/j.1468-3083.2004.00858.x>
6. Lacarrubba F, Micali G. Videodermoscopy and scabies. *J Pediatr*. 2013;163:1227. <http://dx.doi.org/10.1016/j.jpeds.2013.04.019>
7. Zalaudek I, Argenziano G. Images in clinical medicine. Dermoscopy of nits and pseudonits. *N Engl J Med*. 2012;367:1741. <http://dx.doi.org/10.1056/NEJMicm1103059>
8. Zalaudek I, Giacomel J, Cabo H, Di Stefani A, Ferrara G, Hofmann-Wellenhof R, et al. Entodermoscopy: a new tool for diagnosing skin infections and infestations. *Dermatology*. 2008;216:14–23. <http://dx.doi.org/10.1159/000109353>
9. Guameri F, Pugliese A, Giudice E, Guameri C, Giannetto S, Guarneri B. Trombiculiasis: clinical contribution. *Eur J Dermatol*. 2005;15:495–6.
10. Owusu-Edusei K Jr, Chesson HW, Gift TL. The economic burden of pediculosis pubis and scabies infections treated on an outpatient basis in the United States: evidence from private insurance claims data, 2001–2005. *Sex Transm Dis*. 2009;36:297–9. <http://dx.doi.org/10.1097/OLQ.0b013e31819241ef>

Address for correspondence: Maria Rita Nasca, Dermatology Clinic, University of Catania, A.O.U. Policlinico Vittorio Emanuele, P.O. Gaspare Rodolico, Via S. Sofia 78, 95123 Catania, Italy; email: nasca@policlinico.unict.it

Distinguishing Nontuberculous Mycobacteria from Multidrug-Resistant *Mycobacterium tuberculosis*, China

To the Editor: Mycobacteria are commonly characterized by positive acid-fast staining. Most mycobacterial species belong to the nontuberculous mycobacteria (NTM), excluding species in the *Mycobacterium tuberculosis* complex and *M. leprae*. Both *M. tuberculosis* and NTM can induce pulmonary infection with similar symptoms and pulmonary radiographic findings (1). These similarities have led to difficulty in distinguishing these infections clinically.

As in many developing countries, the acid-fast stain is the only bacteriologic basis for diagnosing tuberculosis (TB) in primary health care institutions in China, where facilities are limited for *M. tuberculosis* culture, strain identification, and drug resistance detection. Thus, NTM is easily misdiagnosed as *M. tuberculosis*, and multidrug-resistant (MDR) TB is unable to be accurately identified. Patients with misdiagnosed TB usually are treated with the standard anti-TB regimens recommended by the Chinese government (i.e., 2HRZE/4HR [2 months of isoniazid (INH), rifampin (RIF), pyrazinamide, and ethambutol, followed by 4 months of INH and RIF 1 time daily] and 2H₃R₃Z₃E₃/4H₃R₃ [2 months of INH, RIF, pyrazinamide, and ethambutol followed by 4 months of INH and RIF 3 times weekly]) (2), which often results in treatment failures. Misdiagnosis is a key hurdle for effective prevention and treatment of TB (3–5). To evaluate the effect of misdiagnosis on TB prevention, we determined the proportion of patients with MDR TB and NTM infection in primary health care institutions in Zhejiang Province, China. Our

